ISP203A Second test SS2010

15 multichoice and true/false questions- 2 pts each.

4 short answer questions

1. At which of these boundaries would you expect to find earthquakes from 100’s of kilometers below the surface of the earth.

**a. ocean-ocean convergent**

b.ocean-ocean divergent

c.continent-continent divergent

d.transform

2. Plate tectonic theory is supported by many kinds of evidence. One of the most important is the magnetic stripes on the sea floor. These stripes parallel mid-ocean ridges. The stripes show that

a. the sea floor gets younger away from the mid-ocean ridge

**b. the seafloor gets older away from the mid-ocean ridge**

c. the age of the seafloor alternates between older and younger away from the mid-ocean ridge

3. Most of the earth is solid but which of the following is liquid?

a. mantle

b. astheosphere

c. lithosphere

**d. outer core**

4. If the lower mantle of the earth were hotter than it is today but all else about the earth were the same, the rate of convection in the mantle would

**a. increase**

b. decrease

c. stay the same

5. When oceanic crust sinks at a convergent boundary, water from the down-going crust causes

a. an increase in the rate of subduction

**b. melting in the overlying mantle**

c. cooling in the overlying mantle

d. earthquakes

6. If the oceanic lithosphere were less dense than it is today, but all else about the earth were the same, the rate of plate motion would

a. increase

**b. decrease**

c. stay the same

7. Which of the following would cause magma to crystallize

a**. removing water from a magma**

b. removing pressure from a magma

c. adding heat to the magma

d. convecting the magma

8. Which of the following contains most of the calcium in the load of rivers

**a. dissolved load**

b. suspended load

c. bedload

9. Many rocks found at the surface of the earth today were, at one time, 10’s of kilometers below the surface. Two related processes cause those rocks to be found at the surface.

1. **erosion and buoyant uplift of solid crust**
2. erosion and magma pushing up the crust
3. folding and erosion
4. faulting and erosion

10. CaCO3 + silica + clay → CO2 + H2O + Ca-silicate

The chemical equation above depicts

1. weathering
2. **metamorphism**
3. melting

11. The increae in CO2 in the atmosphere is a danger to coral reefs because

a. coral do not thrive in warm water

b. the organisms that build reefs can be poisoned by high levels of CO2

c. **the carbon dioxide, when dissolved in seawater, increases the potential for calcium carbonate to dissolve**

12. The dissolved load of streams has the same residence time in the oceans as water does.

a. T

b. **F**

13. An important chemical reaction in the calcium cycle is making and breaking bonds between Ca2+ and CO32-  . Energy is released when those bonds are broken.

a. T

b.**F**

14. Respiration and oxidation are represented by the same chemical equation.

a**. T**

b. F

15. Most organic matter in streams is found in the bedload.

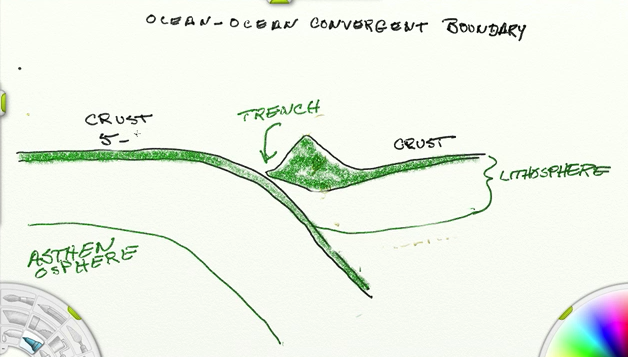
a. T

b. **F**

1. Describe how the cause(s) of convection in the mantle and oceans are (10pts)
2. Similar- **In both, convection is caused by thermally induced density differences in the mantle and ocean.**
3. Different- **The mantle is heated from below causing a decrease in density of the material. The oceans are not heated from below. Instead the surface waters increase in density due to cooling and evaporation, causing them to sink.**
4. Draw an ocean-ocean convergent plate boundary and label the following

(25 pts)

1. crust
2. lithosphere
3. asthenosphere
4. trench



1. Precipitation of salt from solution is similar to crystallization of a compound from magma because……… (20 pts). You receive more points for causal similarities than for non-causal similarities.

**Both are caused when the energy balance favors formation of bonds between elements and/or molecules. For most compouinds, precipitation and/or crystallization is caused by a reduction in temperature.**

1. Ca cycle diagram (25pts)